Carlsbad Oaks North
Habitat Conservation Area

(CNLM No: S034)

Annual Work Plan

October 2009 - September 2010

Prepared for:

U.S. Fish and Wildlife Service
California Department of Fish and Game
City of Carlsbad

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October, 2009

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I. INTRODUCTION AND SUMMARY

This work plan has been developed from the guidelines for goals and objectives set forth in the City of Carlsbad Preserve Management Plan (PMP) for the Carlsbad Oaks North Habitat Conservation Area (HCA) dated January 2005 (Tierra Data 2005) and as agreed to by the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). This annual work plan also includes additional management activities that the Center for Natural Lands Management (CNLM, referred to in-text as the Center) feels are appropriate to protect and maintain the natural resources at the HCA in perpetuity.

The HCA covers 326 acres, of which 108.4 acres are located within a conservation easement (CE) on lands owned by the County of San Diego. The CE was transferred to the Center in November of 2005. The Center received funds to manage the CE portion in May of 2006 at which time management activities commenced. The Center received fee title for the remaining 219.6 acres from the previous owner, Techbilt Construction Corporation (Techbilt), in March of 2007.

The purpose of this work plan is to identify the tasks and budget required to complete the management activities for the upcoming management year that will begin on October 1, 2009 and end on September 30, 2010. This is the fourth annual work plan submitted for this HCA since receiving the original CE portion in May 2006. Unless otherwise stated, all tasks will be performed by the Center's Area Manager, Markus Spiegelberg, Center HCA Managers Patrick McConnell and Jessica Vinje.

Summary of Tasks and Goals for the 2009-2010 Management year:

- Install and maintain existing signs and fences
- Map all sensitive wildlife species observed, note all animal species observed
- Continue census and mapping efforts for the San Diego thornmint (*Acanthomintha ilicifolia*), thread-leaved brodiaea (*Brodiaea filifolia*), summer holly (*Comarostaphylis diversifolia*), and Nuttall's scrub oak (*Quercus dumosa*)
- Conduct habitat assessments of thread-leaved brodiaea, and San Diego thornmint
- Conduct focused surveys for Coastal California gnatcatcher (*Polioptila californica californica*), record and map observations of other sensitive avian species
- Set up and conduct coastal sage scrub (css) long-term monitoring plots
- Conduct coast live oak forest (clof) long-term monitoring
- Track wildlife movement using wildlife cameras
- Track dead zone extent in southern parcel of CE portion of HCA
- Monitor and control nonnative, exotic plants in restoration and enhancement areas in coordination with Techbilt, the developer of the Carlsbad Oaks North business park
- Control non-native hollow-stem asphodel (*Asphodelus fistulosus*), rosemary (*Limmonium* sp.), Mexican fan palm (*Washingtonia robusta*), Canary Island date palm (*Phoenix canariensis*), ash (*Fraxinus jonesii*), African fountain grass (*Pennisetum sataceum*), saltcedar (*Tamarix* sp.) and pampas grass (*Cortaderia selloana*)
- Conduct weekly patrol visits

- Remove trash as necessary
- Conduct Conservation Easement compliance
- Prepare and provide to the wildlife agencies an annual report that describes the management activities and information gathered during the management year and includes a CE compliance report for the management year
- Draft position papers for Carlsbad Habitat Management Plan (HMP) covered sensitive plant species.
- Provide an accounting of funds to be spent in the management year

Appendix 1 (*Task Schedule*) identifies the approximate schedule of tasks for the upcoming management year. Appendix 2 (*Annual Budget*) provides a financial summary for both staff time and costs for the year. The location of the HCA is shown in Appendix 3.

II. MANAGEMENT ACTIVITIES

The following sections identify and describe the activities to be performed during the upcoming management year. Based upon the Property Analysis Record (PAR) developed by the Center to outline long-term management tasks and costs, management activities for the HCA can be categorized into seven groups: Capital Improvements, Biological Surveys, Habitat Restoration and Maintenance, Public Services, Reporting, Office Maintenance, and Operations. Each of these categories will be discussed below.

A. CAPITAL IMPROVEMENTS

The installation of signs and fences will occur during this management year:

1. **Signing** Signs will be maintained at all of the major access points and along most of the perimeter to the HCA, and a few other needed locations. Older signs placed along the periphery of the property will be replaced with No Trespassing signs. Signage will need placement along City of Carlsbad trail that follows La Mirada Creek, and along El Fuerte and Faraday Avenue. Additionally, signage will need to be replaced with more appropriate signs along access points and roadways along the eastern parcel boundaries to reflect the presence of the City trail. Each sign explains that the HCA is dedicated as a habitat conservation area, and that fire, mechanized travel, dumping and shooting are prohibited.

2. **Fencing** We continue to install smooth-wire fencing along portions of the HCA that are adjacent to Faraday Ave., and along the City trail that follows La Mirada Creek. We will also remove more sections of orange construction fencing along certain areas of HCA boundary where trespass isn't likely. We will continue to dissuade foot traffic along sections of the switchback trail that leads from the skate park on the western margin of the HCA by replacing vegetation obstacles along trail. As build-out continues in the center-east of the HCA, we will look for problem spots, or new entry points created by

mountain bikers and runners, and close these off when they appear. We will continue to maintain existing fencing, and make repairs to vandalized fencing when necessary.

B. BIOLOGICAL SURVEYS

Biological monitoring activities at the HCA will follow items listed in the PMP. The Center has modified monitoring tasks outlined in the PMP to adjust the task time lines and some of the tasks which it finds to be unnecessary at this time. Below is a description of the tasks that will be accomplished during the upcoming management year. In addition, Table 1 outlines all tasks that will be completed at the HCA and an associated time line for the next 5 years.

Monitoring during the next year includes focused surveys for coastal California gnatcatcher, census and mapping of sensitive plants, habitat assessments for two of these sensitive species, coast live oak forest monitoring, and includes the second year of a long-term css monitoring program. Other sensitive plant and animal species will be mapped and counted when noted. All landmark data will be entered or stored in a Geographic Information System (GIS) database. A brief description of monitoring activities outlined by taxa is provided below:

1. Animal Use Monitoring

a. California Gnatcatcher & Avifauna Monitoring We will conduct two to three focused surveys for coastal California gnatcatchers during the spring months and note other sensitive bird species.

b. Small and Large Mammal Monitoring Sensitive mammals, such as southern muledeer (*Odocoileus hemionus*) and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) will be mapped when they are observed. In addition, wildlife tracking cameras will continue to be installed in several locations to determine which species use the HCA and where corridors for these species may exist.

c. Amphibian and Reptile Monitoring Sensitive amphibians or reptiles, such as orange-throated whiptail *(Cnemidophorus hyperythrus*) and San Diego horned lizard (*Phrynosoma coronatum blainvilli*) will be mapped where noticed during the performance of other management activities.

2. Vegetation Sampling and Habitat Assessments

a. CSS long-term monitoring More long-term vegetation monitoring plots will be measured throughout the HCA as part of our objective to track changes in species cover, presence, and population attributes over time. More information about the justification for these plots, and the sampling design is provided in Appendix 4.

b. Clof monitoring A coast live oak forest (clof) trial plot was set up and measures taken during the 2008-2009 management year. These data informed methods for a data collection design that will be robust and informative. Three plot locations have been located and

marked. Measures taken this fiscal year will include stand density, counts, point intercept for canopy and ground cover, belt diversity, and diameter at breast height (dbh).

Table 1. Schedule of Biological Monitoring Tasks

	Management Year				
Monitoring task	**2009/2010**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**
Focused sensitive reptile surveys[1]		X			TBD[2]
Coastal California gnatcatcher surveys (including observations of other sensitive avian species)	X			X	TBD
Wildlife tracking	X	X	X	X	X
css vegetation data collection[3]	X	X	TBD	TBD	TBD
Thread-leaved brodiaea and San Diego thornmint surveys (including assessment of habitat)	X	X	X	TBD	TBD
Summer holly and Nuttall's scrub oak[4]	X	X		TBD	TBD
Other sensitive plant surveys	X	X		X	
Clof assessments	X	X	TBD	TBD	TBD

1. Focused reptile surveys will occur in lieu of installing and monitoring pitfall arrays. Pitfall arrays will not be installed since the HCA is heavily used by the public. In the experience of the Center, these arrays would be vandalized. Incidental observations of individuals or signs (scat, tracks) will be mapped.
2. TBD = To Be Determined at some future time. Evolving habitat management needs may preclude monitoring for certain taxa during select years, depending on need and budget.
3. The Center initiated coastal sage scrub quantitative monitoring during the 2008-2009 management year. The Center plans on monitoring each plot on a bi-annual basis, and has stratified sampling by aspect and location throughout several preserves in order to visit a necessary amount of plots on a yearly basis.
4. Census and mapping was partially completed in the summer of 2007. Medical leave among personnel limited mapping effort in 2007-2008 management year. Weed removal needs precluded mapping efforts during 2008-2010 management year. If possible, mapping and censusing of these species will be accomplished year.

c. San Diego thornmint and thread-leaved brodiaea habitat assessments Direct counts of both species will take place, estimates of vegetative cover by species and edaphic cover will be taken at sites where the species are found. Height and flower count for thornmint inside quadrats is measured also, in order to generate information relating to plant cover origin and density. For details on the rational and methodology for conducting the San Diego thornmint assessments, see the 2008-2009 Annual Report for this HCA (CNLM 2009).

d. Nutall's scrub oak and summer holly mapping Hundreds of individuals of each species were censused and mapped in the summer of 2007. The mapping was not accomplished as planned during 2008 or 2009. Budget permitting, we will accomplish more mapping for these species during summer 2010. With further information about location and population numbers, subsequent vegetation assessments can be designed which can inform management activities.

Some sensitive plant species in addition to those already listed will be censused and mapped where found throughout the HCA in spring 2010. These include previously found species such as San Diego goldenstar (*Muilla clevelandii*), small flowered morning glory (*Convolvulus simulans*), Palmer's grapplinghook (*Harpagonella palmeri*), and small flowered microseris (*Microseris douglasii* var. *platycarpha*). With further information about location and population numbers, subsequent vegetation assessments can be designed which can inform management activities. Some sensitive perennials known to occur in the HCA, such as spineshrub (*Adolphia californica*), western dichondra (*Dichondra occidentalis*), and San Diego sagewort (*Artemisia palmeri*) may be budgeted for mapping and censusing in future years.

C. HABITAT RESTORATION AND MAINTENANCE

Most of the HCA habitat is good quality, with little disturbance from nonnative species. There are nonnative exotic plants scattered throughout the HCA, however. The Center has budgeted for continuing the eradication efforts in riparian areas and in scrub habitat.

As per the wildlife agency permits for the Carlsbad Oaks North development, Techbilt and the regulatory agencies, Techbilt is responsible for the removal and maintenance of all "zero" tolerance nonnative plant species within the approved habitat restoration and enhancement projects (5-year maintenance period). The Center will continue to monitor and coordinate removal of nonnative exotics in the HCA with Techbilt when they are located.

Priority weeds The Center has budgeted for, and will contract continued treatment of hollow-stem asphodel and rosemary during the winter/spring of 2009. The Center has also budgeted for contractors to kill Canary Island date palms in drainages throughout the Preserve not included in habitat restoration and enhancement areas that Techbilt is responsible for. We are prioritizing the removal of hollow-stem asphodel, rosemary, Mexican fan palm, Canary Island date palm, ash, African fountain grass, saltcedar, and pampas grass. We will expand the selection of priority removal species as the above list becomes more manageable, and/or other threatening species emerge.

Table 2. Sensitive plants present and threats 2009-2010

Name	Threats	Actions Planned
Thread-leaved brodiaea MHCP[1], FT[2]	Human disturbance Non-native grasses and forbs	Frequent patrol Yearly habitat assessments[3]
San Diego thornmint MHCP, FT	Human disturbance Non-native grasses and forbs	Frequent patrol Yearly habitat assessments
Small-flowered microseris CNPS List 4.2	Human disturbance Non-native grasses and forbs	Frequent patrol Habitat assessments yearly coincident with San Diego Thornmint
Western dichondra CNPS List 4.2	Human disturbance	Frequent patrol
Palmer's grapplinghook CNPS List 4.2	Human disturbance Non-native grasses and forbs	Frequent patrol
Summer holly MHCP, CNPS List 1B.2	Human Distrubance	Frequent patrol Habitat assessments
Nuttal's scrub oak MHCP, CNPS List 1B.1	Human disturbance	Frequent patrol Habitat assessments
Small flowered morning glory CNPS List 4.2	Human disturbance Non-native grasses and forbs	Frequent patrol Habitat assessments yearly coincident with San Diego Thornmint
California adolphia CNPS List 2.1	Human disturbance	Frequent patrol

1 MHCP refers to Multi Habitat Conservation Program for Northern San Diego County, these species are listed under the Carlsbad HMP (Habitat Management Plan), thereby requiring certain management measures to attain.
2 FT = Federally listed as threatened.
3 Habitat assessments determine whether weed removal activities are needed. For non-focus species, long-term css monitoring will determine trends in non-native cover that can then be actionable. Other direct threats to native cover such as trails or vandalism can be observed and noted during regular patrol activities.

Enhancement The Center will continue to control weeds such as black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), milk thistle (*Silybum marianum*) and Italian thistle (*Carduus pycnocephalus*) along the southeastern section of the Preserve, where clay soils can potentially be converted to native grassland, or habitat for rare forbs.

Dead zone We will continue mapping the extent of the dead zone that is resulting from water seepage from the edge of the HCA. Another area of dead vegetation was noted during CE compliance monitoring this summer, and this also will be mapped during the 2009-2010 management year.

D. PUBLIC SERVICES

Public services activities include the patrolling of the HCA, consulting with nearby businesses about perimeter landscaping, and responding to emergencies. However, other opportunities for public service may be forthcoming during the year with local groups and individuals interested in volunteering labor for HCA projects, and special interest field trips. Whenever possible, HCA management will try to accommodate these activities.

1. **Patrolling** Patrols will be performed approximately four times per month, and during biological surveys or other HCA activities. The main patrol activities will be to ensure that the public does not use any of the illegal trails located on the HCA until all construction is completed. Fencing, signage, and itinerant encampment removal will be main tasks during the upcoming management year. Observations of sensitive animals, new human impacts, new weed infestations, and trash will be gathered during patrols as well.

2. **Emergency Response** Staff time has been allocated from the current budget for response to emergencies on the HCA. Such emergencies could include response to wildfires, wildlife problems reported by neighbors, and illegal trespass.

E. REPORTING

Reporting requirements include the management of the HCA's database/GIS system, the photo-documentation stations, and the production of various status reports to the City of Carlsbad USFWS, CDFG and Center administration.

1. **Database/GIS Management** Data derived from routine patrols and photo-documentation will be entered into and maintained in the HCA's existing database/GIS system. Additional databases will be established for the various biotic monitoring programs including the production of historical and current vegetation maps. Efforts will be made to coordinate and standardize database fields and parameters with other reserves. This task will be accomplished by a subcontractor, Cadre Environmental. This company will standardize all of the HCA GIS files/databases with all of the other Center GIS files/databases.

2. **Photo-documentation Stations** Permanent photo-documentation stations were established in 2006 and photographs were taken, labelled and stored. These photographs will be updated in 2010 as needed.

3. **Reports**

a. Year-End/Agency Reports A year-end report will be prepared by the HCA manager by early November 2010 detailing the results of the year's management activities. This report will include recommendations for the continuation of various activities for the

following management year and will be submitted to the City of Carlsbad, USFWS and CDFG as required under permit reporting conditions.

b. Annual Work Plan The annual work plan for the 2010-2011 management year will be formulated by the end of the 2009-2010 management year and will be based upon experiences during previous years' operations. This work plan will be submitted to the City of Carlsbad, USFWS and CDFG.

c. Conservation Easement (CE) Compliance The HCA Manager will monitor compliance of Conservation Easement portion of the HCA (APN 209-050-25-00) to ensure the conservation values are maintained in perpetuity. This process insures CE's are being managed appropriately, and ensures continuity of process. Compliance visits are to be carried out during the later portion of the management year, and will be appended to each year's annual. Next management year will encompass the fourth CE Compliance visit cycle since inception of this HCA. For more information regarding reasoning and methodology, see the Annual Report 2008-2009 for this HCA.

d. Position Paper Preparation The Center is conducting rare plant and animal monitoring and research on our preserve system. Data are being collected and compiled on these plants and animals. The Center has allocated funds to begin preparation of position papers for selected City of Carlsbad's Covered Species (plants). These papers will summarize what is known and not known about each species and the Center will make recommendations on what research and/or management actions are needed for conservation and perpetual management of each species.

F. OFFICE MAINTENANCE

HCA management will maintain offices in an organized manner to facilitate maximum efficiency. This section of the budget includes outlays for general office work, utilities, and telephones, among other items/tasks.

G. OPERATIONS

Operations include the training and professional growth of Center personnel, and inspection of the HCA by Center administration. Funds have been allocated in the current budget for the HCA Managers to attend staff retreats or other meetings during the 2009-2010 year. Also included within this category of activity is the conduction of employee reviews.

III. WORKLOAD AND BUDGETS

A. SUPERVISION & STAFFING

The Area Manger will be supervised by the Center's Director of Science, Dr. Deborah Rogers. Tasks and hours will be coordinated by the Area Manager and approved by Dr Rogers. The Area Manager, Markus Spiegelberg will supervise the HCA Managers, Patrick McConnell and Jessica Vinje. Additionally, hours have been allocated for a Dr. Rogers to assist with document reviewing and scientific research conducted on Center HCA's.

B. BUDGETING

A budget of $32,332 has been allocated for this management year and is included here as Appendix 2. Every effort will be made by HCA Management to allocate time and expenses according to this estimated budget.

IV. REFERENCES

CNLM. Carlsbad Oaks Habitat Conservation Area (S034) Annual Report 2008-2009. December 2009.

Tierra Data. City of Carlsbad Management Plan for the Carlsbad Oaks North Habitat Conservation Area. January 2005.

V. APPENDICES

Appendix 1

2009-2010 Task Schedule

Task	October-December 2009	January-March 2010	April to June 2010	July to September 2010
Nonnative Plant Removal	X	X	X	X
Sensitive Plant Surveys		X	X	X
Habitat Assessments (Rare and clof)		X	X	X
CSS monitoring		X	X	
Avian surveys		X	X	
Herpetological surveys			X	X
Wildlife camera	X	X	X	X
GIS/Database	X		X	
Fencing/Signage	X			X
Patrolling	X	X	X	X
Reports				X

Appendix 2

Annual Budget 2009-2010

Budget Task Detail

Carlsbad Oaks N 09-10

Annual Budget for Yr 2009-2010

Ongoing Expenses

10/06/2009

Task list	Specific Description	Unit	Reinvestment	Quantity	Rate	Num Yrs	Cost	Contingency	Administration	Total Cost
Biotic Surveys										
Conservation Easement	Compliance	L. Hours		10.00	30.55	1	305.50	0.00	73.32	378.82
Mammalogist	W/L camera	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Ornithologist	Field Survey AM	L. Hours		16.00	45.53	1	728.48	0.00	174.83	903.31
Plant Ecologist	Aca ill Hab Ass.	L. Hours		6.00	30.55	1	183.30	0.00	43.99	227.29
Plant Ecologist	Aca ill Hab Ass.	L. Hours		4.00	36.20	1	144.80	0.00	34.75	179.55
Plant Ecologist	Brofil Hab Ass. PM	L. Hours		6.00	30.55	1	183.30	0.00	43.99	227.29
Plant Ecologist	Brofil Hab Ass. PM	L. Hours		4.00	36.20	1	144.80	0.00	34.75	179.55
Plant Ecologist	Field Survey	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Plant Ecologist	Field Survey	L. Hours		14.00	36.20	1	506.80	0.00	121.63	628.43
Plant Ecologist	Field Survey CSS	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Plant Ecologist	Field Survey CSS	L. Hours		16.00	36.20	1	579.20	0.00	139.00	718.20
Plant Ecologist	Rare pl. mapping	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Plant Ecologist	TLB Study JV	L. Hours		17.00	36.20	1	615.40	0.00	147.69	763.09
Plant Ecologist	TLB Study PM	L. Hours		17.00	30.55	1	519.35	0.00	124.64	643.99
Plant Ecologist	Track kill area PM	L. Hours		4.00	30.55	1	122.20	0.00	29.32	151.52
Science Director	Coordination/Overs	L. Hours		15.00	50.00	1	750.00	0.00	180.00	930.00
Sub total							6,738.33	0.00	1,617.19	8,355.52
Field Equipment										
General	Cap	Item		1.00	5.00	1	5.00	0.00	1.20	6.20
General	Shirt-long sleeve	Item		2.00	13.00	1	26.00	0.00	6.24	32.24
Vehicle	Mileage AM JV	Mile		800.00	0.55	1	440.00	0.00	105.60	545.60
Vehicle	Mileage PM	Mile		2,300.00	0.55	1	1,265.00	0.00	303.60	1,568.60
Sub total							1,736.00	0.00	416.64	2,152.64

NOTE: Because the values are rounded, there may be small errors.

Budget Task Detail

Carlsbad Oaks N 09-10

Annual Budget for Yr 2009-2010

Ongoing Expenses

10/06/2009

Task list	Specific Description	Unit	Reinvestment	Quantity	Rate	Num Yrs	Cost	Contingency	Administration	Total Cost
Habitat Maintenance										
Exotic Plant Control	Contractor Onion	L. Hours		40.00	35.60	1	1,424.00	0.00	341.76	1,765.76
Exotic Plant Control	Contractor	L. Hours		8.00	30.55	1	244.40	0.00	58.65	303.05
Exotic Plant Control	Pampas ctrl PM	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Exotic Plant Control	Saltcedar ctrl PM	L. Hours		8.00	30.55	1	244.40	0.00	58.65	303.05
Exotic Plant Control	Velvet ash & palm	L. Hours		8.00	30.55	1	244.40	0.00	58.65	303.05
Exotic Plant Control	Herbicide 41%	Gallon		0.50	150.00	1	75.00	0.00	18.00	93.00
Exotic Plant Control	Herbicide	Gallon		1.00	185.00	1	185.00	0.00	44.40	229.40
Exotic Plant Control	Herbicide	Gallon		0.50	147.00	1	73.50	0.00	17.64	91.14
Exotic Plant Control	Herbicide Telar	Gallon		0.10	400.00	1	40.00	0.00	9.60	49.60
Sub total							3,019.50	0.00	724.68	3,744.18
Office Maintenance										
Office Supplies,	Off. supplies &	Year		1.00	100.00	1	100.00	0.00	24.00	124.00
Office Supplies,	Off. supplies &	Year		1.00	180.00	1	180.00	0.00	43.20	223.20
Office Supplies,	Off. supplies &	Year		1.00	25.00	1	25.00	0.00	6.00	31.00
Rent	Office	Year		1.00	186.00	1	186.00	0.00	44.64	230.64
Rent	Office	Year		1.00	446.40	1	446.40	0.00	107.13	553.53
Rent	Office	Year		1.00	93.00	1	93.00	0.00	22.32	115.32
Telephone Charges,	Phone Charges AM	Year		1.00	132.00	1	132.00	0.00	31.68	163.68
Telephone Charges,	Phone Charges PM	Year		1.00	288.00	1	288.00	0.00	69.12	357.12
Telephone Charges,	Phone Charges	Year		1.00	50.00	1	50.00	0.00	12.00	62.00
Sub total							1,500.40	0.00	360.09	1,860.49

NOTE: Because the values are rounded, there may be small errors.

Budget Task Detail

Carlsbad Oaks N 09-10

Annual Budget for Yr 2009-2010

Ongoing Expenses

10/06/2009

Task list	Specific Description	Unit	Reinvestment	Quantity	Rate	Num Yrs	Cost	Contingency	Administration	Total Cost
Operations										
Audit	Audit-cost share	Year		1.00	363.37	1	363.37	0.00	87.20	450.57
Insurance	General	Year		1.00	421.37	1	421.37	0.00	101.12	522.49
Other	Staff Retreat &	L. Hours		6.00	45.53	1	273.18	0.00	65.56	338.74
Other	Staff Retreat &	L. Hours		4.00	30.55	1	122.20	0.00	29.32	151.52
Other	Staff Retreat &	L. Hours		4.00	36.20	1	144.80	0.00	34.75	179.55
Other	Staff Retreat &	Year		1.00	158.87	1	158.87	0.00	38.12	196.99
Other	Vacation, Holiday	L. Hours		20.00	45.53	1	910.60	0.00	218.54	1,129.14
Other	Vacation, Holiday	L. Hours		40.00	30.55	1	1,222.00	0.00	293.28	1,515.28
Other	Vacation, Holiday	L. Hours		15.00	24.08	1	361.20	0.00	86.68	447.88
Sub total							3,977.59	0.00	954.62	4,932.21
Public Services										
Patrolling	Patrol	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Patrolling	Patrol Ranger	L. Hours		90.00	24.08	1	2,167.20	0.00	520.12	2,687.32
Sub total							2,656.00	0.00	637.44	3,293.44
Reporting										
Administrative	Operations AM	L. Hours		32.00	45.53	1	1,456.96	0.00	349.67	1,806.63
Administrative	Operations PM	L. Hours		40.00	30.55	1	1,222.00	0.00	293.28	1,515.28
Administrative	Operations PM	L. Hours		10.00	36.20	1	362.00	0.00	86.88	448.88
Agency Report	Annual Report AM	L. Hours		6.00	45.53	1	273.18	0.00	65.56	338.74
Agency Report	Annual Report PM	L. Hours		16.00	30.55	1	488.80	0.00	117.31	606.11
Agency Report	Position paper,	L. Hours		8.00	30.55	1	244.40	0.00	58.65	303.05
Annual Work Plan	Plan And Par	L. Hours		4.00	45.53	1	182.12	0.00	43.70	225.82
Annual Work Plan	Plan And Par	L. Hours		6.00	30.55	1	183.30	0.00	43.99	227.29
Database Management	Data Input &	L. Hours		6.00	45.53	1	273.18	0.00	65.56	338.74
Database Management	Data management	L. Hours		6.00	30.55	1	183.30	0.00	43.99	227.29
GIS/CAD Management	Data Management	L. Hours		4.00	45.53	1	182.12	0.00	43.70	225.82

NOTE: Because the values are rounded, there may be small errors.

Budget Task Detail

Carlsbad Oaks N 09-10

Annual Budget for Yr 2009-2010

Ongoing Expenses

10/06/2009

Task list	Specific Description	Unit	Reinvestment	Quantity	Rate	Num Yrs	Cost	Contingency	Administration	Total Cost
GIS/CAD Management	Data Management	L. Hours		6.00	30.55	1	183.30	0.00	43.99	227.29
Sub total							5,234.66	0.00	1,256.31	6,490.97
Site Construction/Maint.										
Fence	Barbed Wire,	Roll		3.00	126.00	1	378.00	0.00	90.72	468.72
Fence	Labor PM	L. Hours		8.00	30.55	1	244.40	0.00	58.65	303.05
Fence	Labor Ranger	L. Hours		16.00	24.08	1	385.28	0.00	92.46	477.74
Fence Posts	T-post clips	Bundle		6.00	1.10	1	6.60	0.00	1.58	8.18
Fence Posts	T-posts	Item		15.00	4.66	1	69.90	0.00	16.77	86.67
Rubbish handling	Rubbish Handling,	Year		1.00	127.81	1	127.81	0.00	30.67	158.48
Sub total							1,211.99	0.00	290.87	1,502.86
Sub Total for All Categories							26,074.47	0.00	6,257.87	32,332.34

NOTE: Because the values are rounded, there may be small errors.

Appendix 3

HCA Location Maps

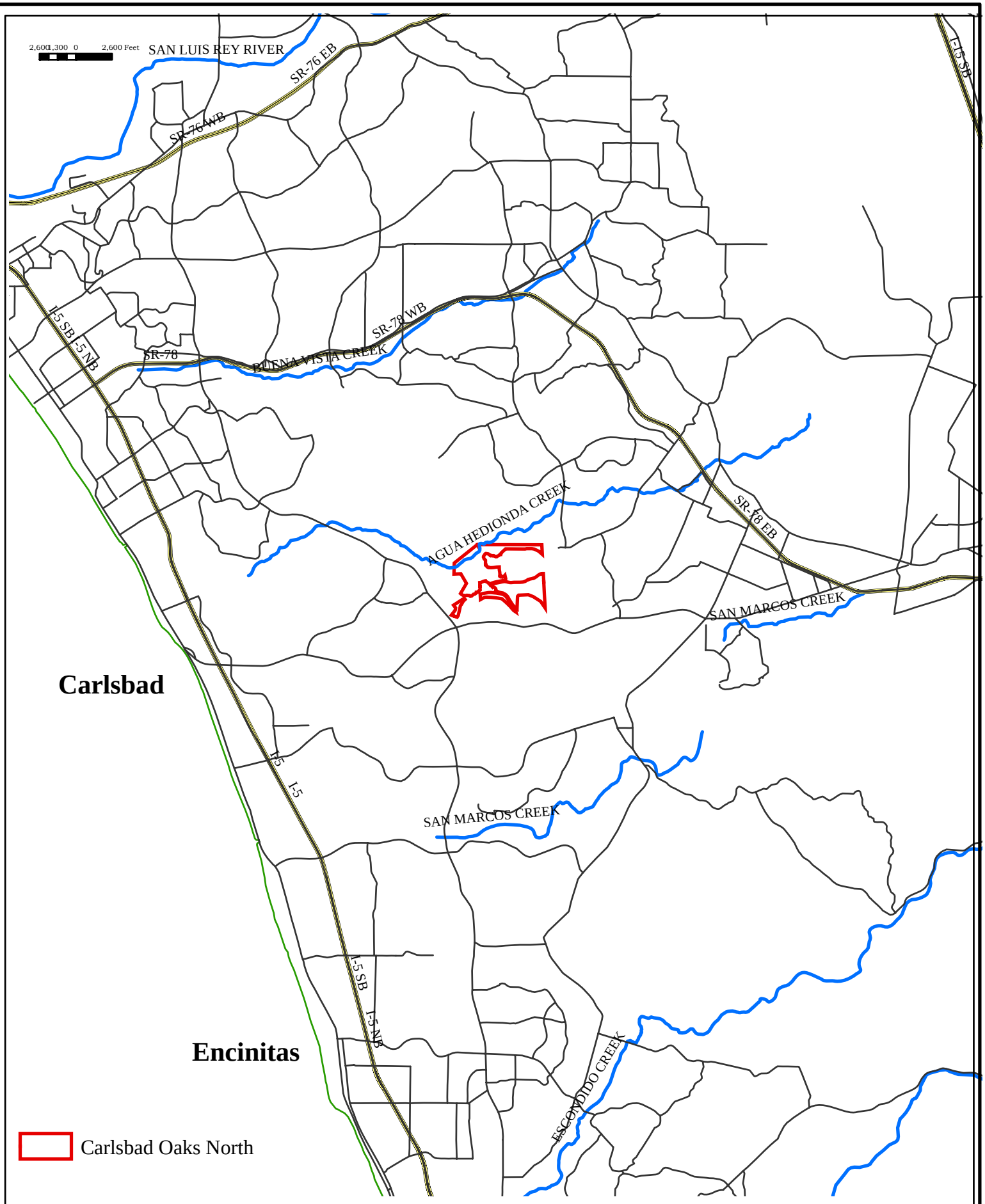

Figure 1
Preserve Vicinity
Carlsbad Oaks North Habitat Conservation Area - Carlsbad, CA

Center for Natural Lands Management

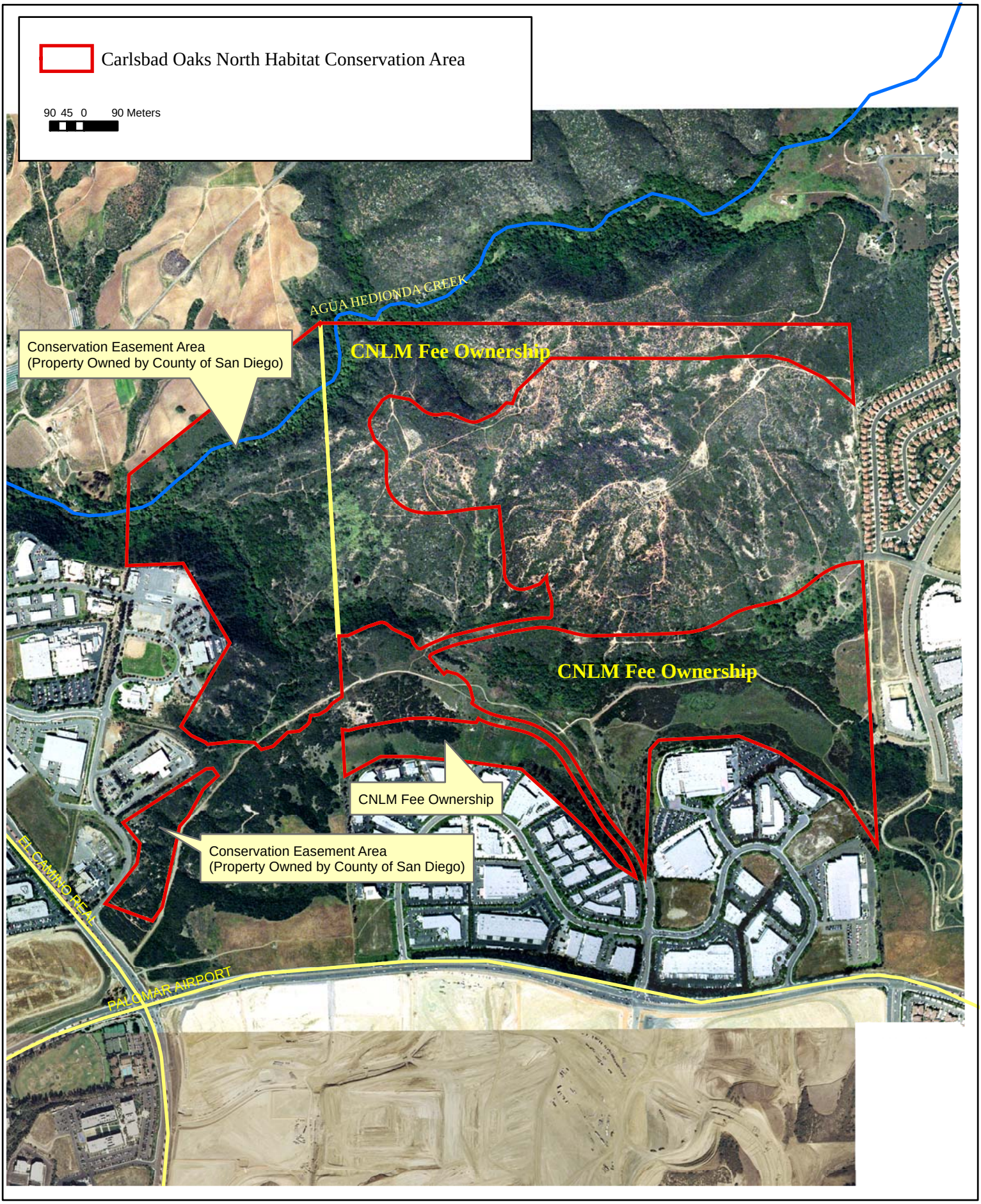

Figure 2
Preserve Location
Carlsbad Oaks North Habitat Conservation Area - Carlsbad, CA

Center for Natural Lands Management

Appendix 4
The Center for Natural Lands Management-San Diego: Coastal Sage Scrub Monitoring Plan

Objective: Track the changes in structure and composition of the coastal sage scrub (CSS) community.

a. Use data to evaluate the structure and composition of the CSS vegetation community and its correlation to predictions of vegetation changes based on theories postulated by ecological and threats models.
b. Use data to evaluate changes or trends in "populations", presence/absence and/or occupied/unoccupied habitat of sensitive animal species, primarily the coastal California gnatcatcher (*Polioptila californica californica*)(CAGN).
c. Use data to evaluate changes in plant diversity.
d. Use data to evaluate changes over time from a baseline vegetation pattern.
e. Use data to guide vegetation management decisions (i.e. non-native plant removal, rare species. range increases/introductions).

Background of Need:

The Center for Natural Lands Management (CNLM) manages several thousand acres of CSS in San Diego County. These areas host several threatened, endangered and sensitive plant and wildlife species, provide key locations for wildlife movement and are some of the last remaining stands of CSS in coastal San Diego. These areas were also specifically designated as important areas to conserve as part of regional Habitat Conservation Planning (HCP) conservation efforts. As a result, the CNLM needs to be able to evaluate recruitment and vigor of this vegetation community over time to guide management decisions and to evaluate changes in plant and animal communities. This monitoring will also provide an opportunity to evaluate theorized predictions of changes in vegetation communities resulting from urbanization, non-native species invasion, global warming, increased edge, altered fire regime and fragmentation (to name a few).

Background of Ecological Model and Threats

CSS is a fire-adapted vegetation community with fires occurring naturally, but most severely under the extreme Santa Ana heat and winds of late summer and fall and during drought conditions. During these conditions there would generally be a "complete burn" where all above ground vegetation within the fire's path would be consumed. After such a fire, herbaceous plants (fire followers), which are known to sprout after fires, would dominate the landscape for a few years. Over time (3-5 years) the shrub lands would regain their dominance, and after 5-10 years a mature assemblage of plants and wildlife would again be found on site (Dallman 1998).

The fire frequency in CSS is as frequent as chaparral due to the volatile oils and resins that occur in CSS plants. The plants, such as white sagebrush (*Saliva apiana*), are able to resprout after a fire or produce many seedlings from the dormant seed bank that lies in the soil. Seed germination of some species may also be stimulated by fire (Holland and Keil 1995, Dallman 1998). However, if the fire frequency and intensity are too great, plants in the CSS community, such as black sage (*Salvia mellifera*) and California sagebrush (*Artemisia californica*) are

permanently killed and can no longer regenerate, slowly converting the CSS community to a non-native, annual grassland (Southwest Division, Naval Facilities Engineering Command 1998).

Each CNLM preserve in San Diego has a different fire history and a different predicted fire future. For example, most of the Rancho La Costa (RLC) Habitat Conservation Area (HCA) burned in the Harmony Grove fire in October of 1996, while the Manchester HCA has not burned (except two very small fires) in its entirety since 1917. Prior to 1917 no data are recorded, so it is uncertain as to when the last significant fire event occurred in the Manchester HCA.

Regardless of fire history and the current vegetation characteristics, there are many realized or potential threats to the integrity of the CSS vegetation community (See RLC Habitat Management Plan CSS Ecological Model and Threats Section) that need to be evaluated:

1. What is the effect of the altered fire regime at each HCA?
2. What is the potential effect of global climate change?
3. What are the effects of urban edge?
4. What are the effects of fragmentation and isolation?
5. What are the effects of altered wildlife usage patterns?

These threats questions lead to other questions associated with their effect on ecological processes and patterns:

1. Are the variables investigated representing a threat?
2. At what spatial scale are the variables representing a threat?
3. How do the effects of the threats listed above effect the distribution and abundance of sensitive plant and wildlife species?
4. How do the threats listed above effect the distribution of non-sensitive plants and animals?
5. How do the effects of each threat alter ecological processes?
6. How do the various measured factors interact?

Predictions

Fire. We predict that as a result of fragmentation, complete burns of preserves are now less likely and there will be fewer, smaller fires resulting in a mosaic of CSS with various age structures.

Global Climate Change. We predict that rainfall patterns will change (likely decrease) over the next 100 years resulting in a lengthening of the fire season, frequency of lightening fires, frequency of drought, and areas burned. We predict:

1. Possible regime shifts (altered abundance and recruitment patterns in various native vegetation assemblages)
2. Altered invasion severity of exotic species due to changes from native-adapted variations in weather phenomena
3. Lowered seedling survival of species due to changes from native-adapted variations in weather phenomena

4. Lowered seed and/or clonal production of future generations due to changes from native-adapted variations in weather phenomena
5. Negative interactions between native wildlife and changes resulting from the above mentioned predictions in vegetative cover

Habitat Fragmentation and Urban Edge. We predict that habitat fragmentation will reduce plant diversity and migration and/or genetic exchange between plant populations. This could affect the CSS community by reducing vigor within populations and eventually leading to extinctions of specific plant species.. Habitat fragmentation has resulted in an increase of urban edge on all our preserves. We predict that this will result in increased pressures from non-native plant species, illegal vegetation clearing, dumping, erosion, and other threats that will change the vegetation structure and composition.

Monitoring Methodology

Approximately fifty plots will be established inside three of our preserves, and the number per preserve allocated by the amount of acreage currently occupied by CSS in each preserve. These plots will be placed in a stratified random manner across our preserves. Stratification will take into account:

1. Size of preserve
2. Slope and aspect
3. Distance from preserve edge/urban edge
4. Presence or absence of CAGN or San Diego horned lizard (*Phrynosoma coronatum blainvillii*)
5. Fire history

Plot Design and Setup

The plot design will be of a modified Whittaker nested vegetation sampling design as in Stohlgren et al. 1995. The dimensions of the macroplot will be 50 meters long by 20 meters wide. Three smaller nested plots will be placed inside the macroplot. The larger of these three is to be 20 meters long and 5 meters wide, placed in the center of the macroplot, with the long axis corresponding to that of the macroplot. The two other nested plots will be at opposite corners of the macroplot, and will be 5 by 2 meters in length, again with the long axis corresponding to that of the macroplot. The design of the modified Whittaker plot we are using deviates from that described in Stohlgren et al. 1995 by not including the 12 smaller 1- square meter rectangles. The long axis of the modified Whittaker plots will be set to cross the environmental gradient present. Sampling will be carried out for both continuous variables (percent cover by species, perennial species height), non-parametric and semi-continuous variables (count of shrub seedlings, species presence).

Point Intercept Data

Percent cover by species will be gathered by running a point-intercept transect along one or both long borders of the macroplots. In addition to species cover, height measurements will be collected for all perennial species measured as a "hit" along the transects. The point-intercept transects will be measured at half meter intervals, thus generating 98 "hits" along one or each long side of the macroplot. Living plants will count as a point or "hit," if a 1.5 millimeter dowel is intersected in the vertical plane by the living tissue of a plant. At each half meter, data pertaining to bare ground, rock, or litter incident with the dowel will also be collected.

Species Diversity, Recruitment and Mortality

Information gathered inside the plots will include species present in each plot, except the largest macroplot. In the two small plots, and in the large central plot, counts of shrub seedlings by species will be documented.

Rational for a Two-Tiered Approach

The data collected in the macroplot, and smaller sub-plots will be useful in generating species area curves and (more importantly) in documenting species presence or absence, as well as recruitment and mortality over time. The advantages of using a multi-scaled approach to quantifying species richness are identified in Stohlgren et al. 1995. As the years progress, small changes in species presence or seedling recruitment may be observed as disappearances, appearances, increases, or decreases on the micro-scale of sub-plot. The appearance of non-native species may be quickly identified on the macroplot scale, while the disappearance, or lack of recruitment among native shrubs may be apparent on the smaller plot scale prior to any notice of change on the macroplot scale. Another advantage of using smaller nested plots is that it provides an affordable estimate of shrub recruitment and mortality, since attempting to quantify these measures would be very labor-intensive if carried out on the macroplot scale.
The point-intercept transect measures will provide a method of quantifying change in abundance by species that may provide clues that tie into changes in recruitment or mortality among the sub-plot counts and diversity estimates. For instance, non-native grasses and/or litter cover changes may be predictive as explanatory variables in a multi-factorial analysis of the response variables mortality or species number decline. Other variables that may be tied into a model explaining the measured pattern may include regional rainfall totals for the season and/or seasonal temperature averages, slope and aspect of plots, fire history, and the presence or absence of animal herbivory.

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